Eder Izaguirre

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PROFESSIONAL EXPERIENCE

- Assistant Physicist, Brookhaven National Laboratory, September 2016 — Present
- Postdoctoral Fellow, Perimeter Institute, September 2012 — August 2016
- Co-spokesperson for the *BDX* collaboration, 2013 — Present
- *Fermi*-LAT collaboration Affiliated Scientist, 2012 — 2015
- Graduate research assistant, SLAC, 2007 — 2012

EDUCATION

- Ph.D., Stanford University, Stanford, CA, September 2012
  Concentration: Physics
  PhD Advisor: Jay Wacker
- Bachelor of Science, City College of NY, NY, June 2007
  Major: Physics
  Second Major: Mathematics

NOTABLE AWARDS

- Michigan Presidential Fellowship, 2016 (declined)
- CERN COFUND Fellowship, 2015 (declined)
- LHC Theory Initiative Graduate Fellowship, 2011
- Woodrow Wilson National Foundation MMUF Travel and Research Award 2011
- Stanford University School of Humanities and Sciences Fellowship, 2007
- CCNY Class Valedictorian, 2007
- Mellon Mays Undergraduate Fellow, 2007
- CCNY Physics Department Ward Medal, 2007
- CCNY Math Department Mazur Award, 2007

PUBLICATIONS

1. Jim Alexander, *et. al., Dark Sectors 2016 Workshop: Community Report*, arXiv:1608.08632. I was a co-convener for the Dark Matter working group.
2. Austin Ball, *et. al., A Letter of Intent to Install a milli-charged Particle Detector at LHC P5*, arXiv:1607.04669. I contributed to the writing of the theory motivation.
3. BDX Collaboration, *Dark Matter Search in a Beam-Dump eXperiment (BDX) at Jefferson Lab*, arXiv:1607.01390, Proposal submitted to the 44th JLab PAC. I co-led the theory calculations and write-up for this document.
4. Ahmed Ismail, Eder Izaguirre, Brian Shuve, *Illuminating New Electroweak States at Hadron Colliders*, Phys.Rev. D94 (2016) no.1, 015001, arXiv:1605.00658.
5. Eder Izaguirre, Gordan Krnjaic, Brian Shuve, *Discovering Inelastic Thermal-Relic Dark Matter at Colliders*, arXiv:1508:03050.
6. Eder Izaguirre, Gordan Krnjaic, Maxim Pospelov, *MeV-Scale Dark Matter Deep Underground*, Phys.Rev. D92 (2015) 9, 095014, arXiv:1507.02681.

7. Eder Izaguirre, Itay Yavin, *A Milli-Window to Another World*, Phys.Rev. D92 (2015) 035014, arXiv:1506.04760.
8. Eder Izaguirre, Gordan Krnjaic, Philip Schuster, Natalia Toro, *Accelerating the Discovery of Light Dark Matter*, Phys.Rev.Lett. 115 (2015) 251301, arXiv:1505.00011.
9. Sergey Alekhin, *et. al.,* A facility to Search for Hidden Particles at the CERN SPS: the SHiP physics case, arXiv: 1504.04855. I contributed to studies of SHiP capabilities in probing light Dark Matter.
10. Eder Izaguirre, Brian Shuve, *Multilepton and Lepton Jet Probes of Sub-Weak-Scale Right-Handed Neutrinos*, Phys.Rev. D91 (2015) 9, 093010, arXiv:1504.02470.
11. Andrea Massari, Eder Izaguirre, Rouven Essig, Andrea Albert, Elliott Bloom, German Arturo Gomez-Vargas, *Strong Optimized Conservative Fermi-LAT Constraints on Dark Matter Models from the Inclusive Photon Spectrum*, Phys.Rev. D91 (2015) 083539, arXiv:1503.07169. I was a contact author for this study. The Fermi LAT collaboration uses the "contact author" designation for the main authors of an analysis.
12. Eder Izaguirre, Gordan Krnjaic, Philip Schuster, and Natalia Toro, *Testing GeV-Scale Dark Matter with Fixed-Target Missing Momentum Experiments*, Phys.Rev. D91 (2015) 9, 094026, arXiv:1411.1404.
13. Andrew Haas, Christopher S. Hill, Eder Izaguirre, and Itay Yavin, *Looking for milli-charged particles with a new experiment at the LHC*, Phys.Lett. B746 (2015) 117-120, arXiv:1410.6816.
14. Eder Izaguirre, Brian Shuve, Itay Yavin, *A New Observable for Identifying Dijet Resonances*, Phys.Rev.Lett. 114 (2015) 4, 041802, arXiv:1407.7037.
15. Marco Battaglieri, *et. al.*, *Dark Matter Search in a Beam-Dump eXperiment (BDX) at Jefferson Lab* , arXiv:1406.3028.
16. Eder Izaguirre, Gordan Krnjaic, Maxim Pospelov, *Probing New Physics with Underground Accelerators and Radioactive Sources*, Phys.Lett. B740 (2015) 61-65, arXiv:1405.4864.
17. Eder Izaguirre, Gordan Krnjaic, Brian Shuve, *Bottom-up Approach to the Galactic Center Excess*, Phys. Rev. D90 (2014) 055002, arXiv:1404.2018.
18. Eder Izaguirre, Gordan Krnjaic, Philip Schuster, Natalia Toro, *Physics Motivation for a Pilot Dark Matter Search at Jefferson Laboratory*, Phys. Rev. D90 (2014) 014052, arXiv:1403.6826.
19. Rouven Essig, *et. al.*, *Dark Sectors and New, Light, Weakly-Coupled Particles*, arXiv:1311.0029.
20. Eder Izaguirre, Gordan Krnjaic, Philip Schuster, Natalia Toro, *New Electron Beam-Dump Experiments to Search for MeV to few-GeV Dark Matter*, Phys.Rev. D88 (2013) 114015, arXiv:1307.6554.
21. Work done within the Fermi-LAT collaboration, *Search for Gamma-ray Spectral Lines with the Fermi Large Area Telescope and Dark Matter Implications*, Phys.Rev. D 88, 082002 (2013), arXiv:1305.5597. I contributed to control-region studies of the Earth-limb photons.
22. Work done within the Fermi-LAT collaboration, *Search of the Earth Limb Fermi Data and Non-Galactic Center Region Fermi Data for Signs of Narrow Lines*, arXiv:1303.2733. I contributed to control-region studies of the Earth-limb photons.
23. Timothy Cohen, Eder Izaguirre, Mariangela Lisanti, Hou Keong Lou, *Jet Substructure by Accident*, JHEP 1303 (2013) 161, arXiv:1212.1456.

24. Anson Hook, Eder Izaguirre, Mariangela Lisanti, Jay G. Wacker, *High Multiplicity Searches at the LHC Using Jet Masses*, Phys.Rev. D85 (2012) 055029, arXiv:1202.0558.
25. Rouven Essig, Eder Izaguirre, Jared Kaplan, and Jay G. Wacker, *Heavy Flavor Simplified Models at the LHC*, JHEP 1201 (2012) 074, arXiv:1110.6443.
26. Daniele Alves, Eder Izaguirre, and Jay G. Wacker, *Higgs, Binos and Gluinos: Split Susy Within Reach*, arXiv:1108.3390.
27. Daniele Alves, *et.al*, *Simplified Models for LHC New Physics Searches*, J.Phys. G39 (2012) 105005, arXiv:1105.2838.
28. Daniele Alves, Eder Izaguirre, and Jay G. Wacker, *Where the Sidewalk Ends: Jets and Missing Energy Search Strategies for the 7 TeV LHC*, JHEP 1110 (2011) 012, arXiv:1102.5338.
29. Daniele Alves, Eder Izaguirre, and Jay G. Wacker, *It's On: Early Interpretations of ATLAS Results in Jets and Missing Energy Searches.* Phys.Lett. B702 (2011) 64-68, arXiv:1008.0407.
30. Anson Hook, Eder Izaguirre, and Jay G. Wacker, *Model Independent Bounds on Kinetic Mixing.* Advances in High Energy Physics, vol. 2011, Article ID 859762, arXiv:1006.0973.
31. Eder Izaguirre, Michael Manhart, and Jay G. Wacker, *Bigger, Better, Faster, More at the LHC.* JHEP 1012 (2010) 030, arXiv:1003.3886.

INVITED TALKS

- Princeton University, particle physics seminar, May 2016.
- MIT, theory seminar, April 2016.
- UC Riverside, particle physics seminar, February 2016.
- Brookhaven National Laboratory, theory seminar, February 2016.
- Durham University, theory seminar, January 2016.
- Simon Fraser University, Physics colloquium, January 2016.
- Syracuse University, theory seminar, November 2015.
- SLAC, theory seminar, November 2015.
- UC Irvine, theory seminar, November 2015.
- TRIUMF, Discoveries at the Dawn of the LHC Run 2 workshop, October 2015.
- University of Michigan, Brown Bag seminar, October 2015.
- MIAPP Institute, Anticipating 14TeV Results Workshop, Munich, July 2015.
- LDMA Workshop, Camogli, Italy, June 2015.
- Beyond WIMPs: From Theory to Detection Workshop, Israel, May 2015.
- Caltech, particle theory seminar, October 2014.
- Fermilab, theory seminar, September 2014.
- New phenomena at the upgraded LHC, TRIUMF, September 2014.
- Theoretical perspectives on new physics at the intensity frontier, University of Victoria, September 2014.
- University of Illinois at Chicago, theory seminar, November 2013.
- Princeton University, theory seminar, October 2013.
- SLAC, theory seminar, October 2013.
- University of Victoria, particle theory seminar, September 2013.

- TRIUMF, theory seminar, September 2013.
- Michigan State University, particle theory seminar, January 2013.
- Lawrence Berkeley National Laboratory, theory seminar, May 2012.
- Harvard University, theory seminar, November 2012.
- C.N. Yang Institute for Theoretical Physics, particle theory seminar, December 2011.
- MIT Center for Theoretical Physics, particle physics seminar, December 2011.
- CERN, Implications of LHC results for TeV-scale physics workshop, November 2011.
- UC Irvine, particle theory seminar, October 2011.
- Maryland Center for Fundamental Physics, elementary particle theory seminar, October 2011.
- Perimeter Institute for Theoretical Physics, particle physics seminar, October 2011.
- Johns Hopkins University, theory seminar, December 2010.
- SLAC, theory seminar, October 2010.
- SLAC Topologies workshop, September 2010.
- ATLAS Physics workshop of the Americas, August 2010.

ADDITIONAL RESEARCH EXPERIENCE

- TASI summer school, June 2009.
- REU at CERN sponsored by the University of Michigan, June-August 2006.

TEACHING EXPERIENCE

General Physics (Physics 23), Fall 2010
Stanford University, Stanford, CA

- In charge of running a discussion section in an algebra-based electricity and magnetism course for pre-medical students.

General Physics (Physics 41, 45), Winter 2010, Spring 2010
Stanford University, Stanford, CA

- Served as Head Teaching Assistant. Duties include collaborating on making of the syllabus for calculus-based mechanics and electricity general physics for engineers. Administrative liaison between students and instructor.

General Physics (Physics 41, 45), Fall 2008, Winter 2009
Stanford University, Stanford, CA

- In charge of running a discussion section in a general physics course for engineering students.